

51. MAMMA OF MULTIPARA.

Showing Excessive Pigmentation of Pregnancy.

The Nipple and Areola are deeply pigmented, and upon the Areola will be seen a series of small non-pigmented nodules consisting of distended Sebaceous Glands, and known as "Montgomery's Tubercles." The Areola is more prominent than normal, and around it is formed an outer zone of irregular and less marked pigmentation, known as the Secondary Areola.



52. ABDOMEN OF GRAVID MULTIPARA.

Showing Striæ Gravidarum of the Present and Former Pregnancies.

With the growth of the pregnant Uterus, more especially from the 4th or 5th month onwards, the anterior abdominal wall is subjected to considerable tension, with the result that the skin covering becomes stretched, portions of the connective tissue of the Cutis Vera becoming actually torn with consequent atrophy and production of a scar. When fresh the Striæ are smooth and purple in colour, and later on when the tension is removed they become pearly white in colour. The fresh Striæ are most marked in the last three months of pregnancy, and may extend to adjoining portions of the thighs, as seen in the accompanying figure.

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53. FŒTAL SKULL

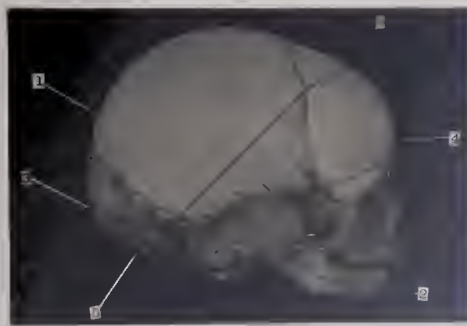
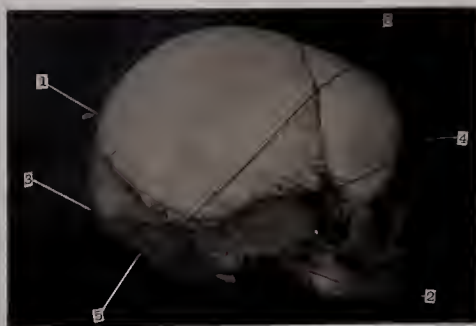
Lateral View, showing Longitudinal Diameters.

The general shape of the Fœtal Skull is that of an ovoid with a long antero-posterior diameter.

The important longitudinal diameters run as follow:—The Occipito-Mental (1, 2) from the tip of the Occipital bone posteriorly (1) to the tip of the chin or Symphysis Menti (2) anteriorly, and measures 5 inches. The Occipito-Frontal (3, 4) from the Occipital protuberance or Inion (3) posteriorly to the root of the nose or Glabella (4) anteriorly, and measures $4\frac{1}{2}$ inches. The Sub-Occipito-Bregmatic (5, 6) from a point (5) midway between the Occipital protuberance and Foramen Magnum to the anterior angle of the Anterior Fontanelle or Bregma (6), and measures 4 inches. It becomes less according as its anterior extremity is moved backwards towards the posterior angle of the Bregma, when it is reduced to something like 3 inches during flexion of the head.

The figures indicate:—

- 1, 2. Occipito-Mental Diameter.
- 3, 4. Occipito-Frontal Diameter.
- 5, 6. Sub-Occipito-Bregmatic Diameter.



54. FŒTAL SKULL

Showing the Sutures, Fontanelles, and Transverse Diameters.

The ossification of the Fœtal Skull at term is incomplete, the bones of the vault being thin and pliable, with intervals between their edges of unossified membrane which form the Sutures and Fontanelles.

The Sagittal Suture (1) runs in the middle line of the skull between the two parietal bones, and is continued as the Frontal Suture (3) between the two halves of the frontal bone. The Coronal Suture (2, 2) lies between the frontal and parietal bones, meeting the Sagittal and Frontal Sutures at the Anterior Fontanelle (5). The Lambdoidal Suture (4) runs between the occipital and parietal bones.

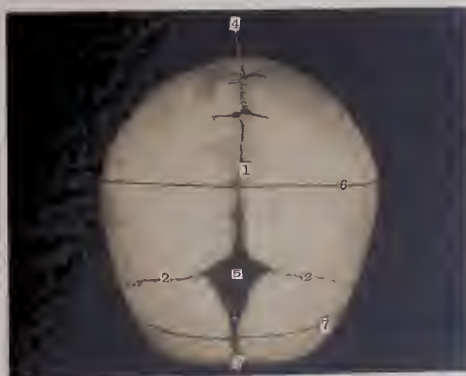
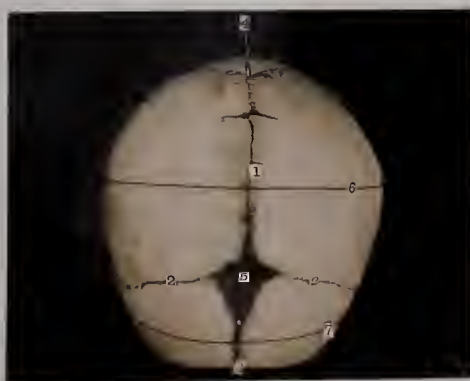
The Anterior Fontanelle or Bregma (5) is the large quadrangular or diamond-shaped piece of unossified membrane at the intersection of the Sagittal and Coronal Sutures. The Posterior Fontanelle (4) is a small triangular depression situated at the point of junction of the Sagittal Suture with the right and left limbs of the Lambdoidal Suture, and the direction of the Occiput is recognised during labour by the fact that the tip of the occipital bone can be depressed under the postero-superior angles of the parietal bones.

The Fœtal Skull is divided into regions, that behind the Posterior Fontanelle being known as the Occiput, that in front of the Anterior Fontanelle as the Sinciput, while the portion between the two Fontanelles, bounded laterally by the two parietal eminences, is called the Vertex. The occipital protuberance and parietal and frontal eminences also form useful landmarks.

The two important Transverse Diameters are the Bi-Parietal (6), running between the two parietal eminences, measuring $3\frac{1}{2}$ inches, and the Bi-Temporal (7), between the ends of the Coronal Suture, measuring $2\frac{1}{2}$ inches.

The figures indicate:—

- | | | |
|-----------------------|-----------------------------------|--------------------------|
| 1. Sagittal Suture. | 3. Frontal Suture. | 6. Bi-Parietal Diameter. |
| 2, 2. Coronal Suture. | 4. Lambdoidal Suture. | 7. Bi-Temporal Diameter. |
| | 5. Anterior Fontanelle or Bregma. | |



55. A. Left Occipito-Anterior (L.O.A.) Position of Head.

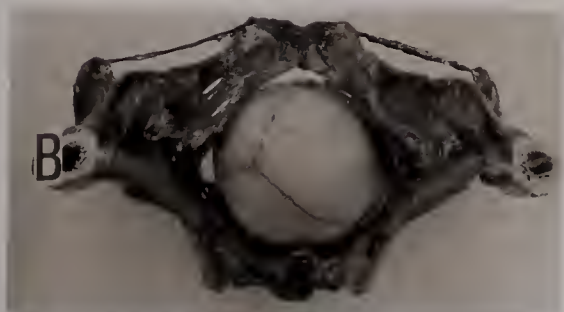
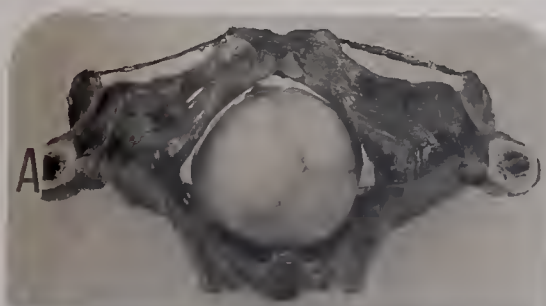
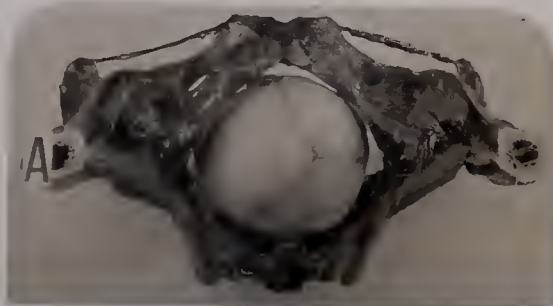
B. Right Occipito-Anterior (R.O.A.) Position of Head.

At the commencement of labour in a normal Pelvis in vertex presentations, the Antero-posterior Diameter is more or less in line with an Oblique Diameter of the Pelvis (Solayres' obliquity). It is evident, therefore, that the head may occupy any one of four positions. These are usually defined in terms of direction of the Occiput (denominator), which may lie to the left and front (L.O.A.), or to the right and front (R.O.A.), to the right and back (R.O.P.), or to the left and back (L.O.P.). The Brim of the Pelvis may be regarded as divided into four quadrants by the intersection of the Conjugate and Transverse Diameters, and the Occiput described as lying in one or other of these quadrants. The Occiput may therefore be defined as anterior when it is opposite either ilio-pectineal eminence, and posterior when opposite either sacro-iliac joint. In the first position the Occiput lies opposite the left ilio-pectineal eminence (*A*); in the second position the Occiput lies opposite the right ilio-pectineal eminence (*B*); in the third position the Occiput lies opposite the right sacro-iliac joint (Stereoscope 56, *C*); in the fourth position the Occiput lies opposite the left sacro-iliac joint (Stereoscope 56, *D*).

These four positions of the head in vertex presentation are referred to for brevity by the initial letters of their names—1. Left Occipito-Anterior (L.O.A.); 2. Right Occipito-Anterior (R.O.A.); 3. Right Occipito-Posterior (R.O.P.); 4. Left Occipito-Posterior (L.O.P.). The Long or Antero-posterior Diameter of the head usually lies in the Right Oblique Diameter of the Pelvis. This is accounted for by the presence of the rectum in the left posterior quadrant of the Pelvis shortening the left Oblique Diameter, and to a certain extent by the natural twist of the uterus on its long axis, which brings its left border to the front. The back of the child is found more frequently toward the front than toward the back of the mother. Thus we find that the first and third positions, L.O.A. and R.O.P., are much more common than the second and fourth positions, R.O.A. and L.O.P. The first or L.O.A. position is more frequent than the third or R.O.P. position in the proportion of 72 to 21 per cent.; while the second position, R.O.A., is more frequent than the fourth position, L.O.P., in the proportion of 5 to 2 per cent.

Thus the order of frequency is L.O.A.; R.O.P.; R.O.A.; L.O.P.

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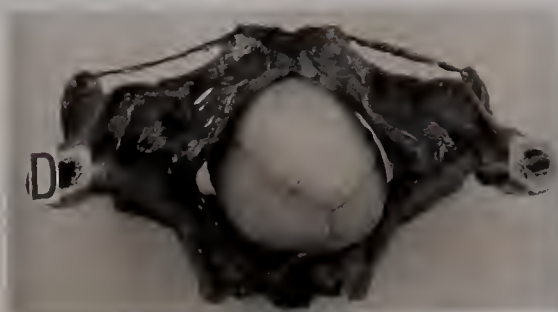
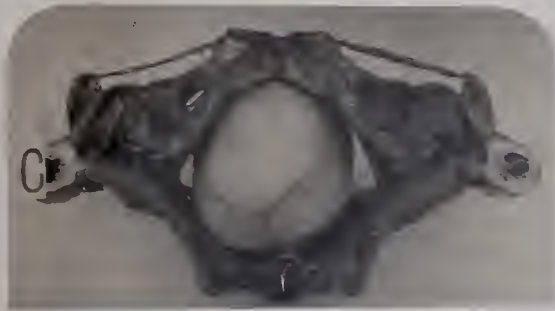


- 56. C. Right Occipito-Posterior (R.O.P.) Position of Head.
D. Left Occipito-Posterior (L.O.P.) Position of Head.

For description and relative frequency consult text of Stereoscope 55.

N.B.—The Right Occipito-posterior position ranks third in the Naegele enumeration, but is second in frequency in actual labour.

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57. NORMAL LABOUR.

Head Escaping over the Distended Perineum.

In Primiparæ, more especially when the Perineum begins to show signs of bulging, attention should be directed towards protecting it as far as possible, and in some cases, where the head is advancing too rapidly, laceration of the Perineum may be prevented by timely checking the advance of the head to allow of further relaxation of the Perineum taking place.

It will be seen that in this case the Perineum shows signs of commencing laceration.

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58. NORMAL LABOUR.

Showing Birth of Fœtal Head.

This shows the delivery of the Fœtal Head by the movement of extension, the bregma, brow, and face of the Fœtus passing in quick succession over the Perineum under the pressure of the expulsive powers.

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59. NORMAL LABOUR.

Showing Birth of Head: External Rotation in Progress.

Shortly after birth of the head has taken place with the movement of extension, the Occiput rotates towards one or other thigh, usually towards the side corresponding to the position of the Occiput at the commencement of labour. This movement is known as external rotation or restitution of the head, and allows the widest (bis-acromial) diameter of the shoulders to be brought into relation with the widest (antero-posterior) diameter of the Pelvic outlet.

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60. NEW-BORN CHILD.

Before Division of the Cord.

The child newly born remains attached to the Placenta by means of the Umbilical Cord until respiration has been fully established. The attendant having satisfied himself that the Uterus is contracting, waits cessation of the placental circulation. He then ligatures the cord in two places, one being placed about $1\frac{1}{2}$ inches from the Umbilicus and the other where the cord emerges from the vulva. After division with scissors between the two ligatures, the cut surface of the foetal portion of the cord should be carefully inspected to see if bleeding has been arrested. The child may then be wrapped up in a blanket and removed. The perineum should be examined at this stage to ascertain if any laceration has taken place.

The Secondary Caput on the head of the infant is seen over the region of the Posterior Fontanelle.



61. THIRD STAGE OF LABOUR.

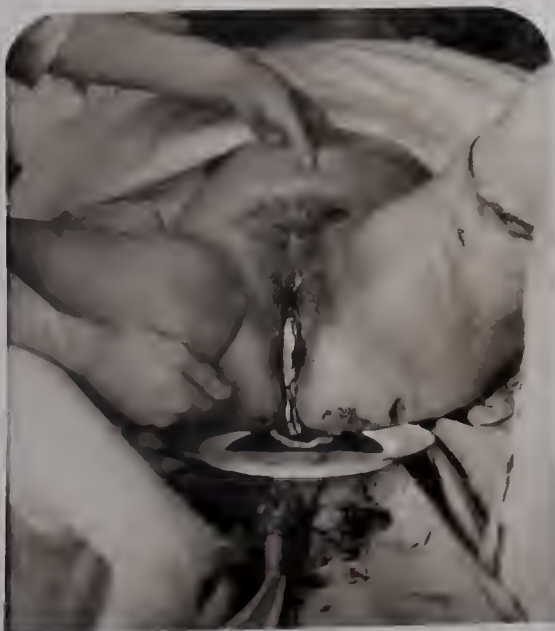
After the birth of the child and its separation from the Placenta, a dish (plate or bowl) is placed below the patient's hips to receive the discharge of blood, &c.

The attendant with the left hand on the Fundus Uteri notes the contraction and gradual emptying of the Uterus, while the right hand is prepared to receive the Placenta as it emerges from the Vulva, the separation and expulsion being left to the natural efforts.

The passage of the Placenta into the Vagina may be detected by the hardening and diminution in size of the Uterus.

The Placenta is received in one hand or both hands, and rotated so as to twist the Membranes which follow it into a rope, so as to avoid any tearing of the Membranes which might lead to subsequent trouble.

The Placenta and Membranes should be examined after removal by holding them on the palm of the hand with the uterine surface uppermost, or floating them in a basin of water to see if they are complete.



62. MANUAL EXPRESSION OF PLACENTA

In a Case of Delayed Third Stage. (Crédé's Method.)

In cases of undue hæmorrhage, or where expulsion of the Placenta is delayed over half an hour or longer, it may be found necessary to resort to artificial expulsion. This is best carried out by the method described by Crédé, which consists in massaging the Uterus so as to promote firm contraction, and then compressing it strongly in the grasp of one or both hands, at the same time pressing the whole organ downwards and backwards into the Pelvic Cavity.

This shows the Placenta thus expressed being received in the right hand.



63. PLACENTA AND UMBILICAL CORD AT FULL TIME.

Showing Fœtal and Maternal Surfaces and Insertion of Umbilical Cord.

The Placenta or After-birth is the product of gestation which is thrown off from the Uterus after the birth of the child, and which, during its intra-uterine life, serves as the means of communication between the Maternal and Fœtal Circulatory System.

It is a flattened, round, or oval organ about 7 inches in diameter, 21 inches in circumference, 1 inch thick, and 1 lb. in weight, but subject to considerable variation. The Membranes (Chorion and Amnion) extend from its margin, and two surfaces fall to be described. The Fœtal or inner surface is shown in 1, 2, and 3, presenting a smooth, glistening appearance, due to the Amniotic covering under which the vessels running from the Umbilical Cord are seen diminishing in size as they pass from the root of the Cord to the Placental Margin. The Maternal or outer surface, as seen in 4, is developed from the Decidua Serotina, and is divided into a number of lobules or cotyledons of irregular shape and varying number. At the time of its expulsion, it is not infrequently found to have some blood clots attached to it, as seen in the upper part of the figure.

The Umbilical Cord or Funis extends from the navel of the Fœtus to the Placenta, and has an average length of 22 inches. It is covered externally by several layers of epithelium, whilst its chief substance is composed of mucoid connective tissue (Wharton's jelly) with three blood-vessels—two arteries and one vein.

The Cord is inserted upon the Fœtal Surface of the Placenta. It may be close to the centre, as in 1, or somewhere between the centre and the periphery, as in 2. More rarely it may become attached at the margin of the Placenta, as in 3, giving rise to the condition known as marginal insertion of the Cord or Battledore Placenta.



64. SAGITTAL SECTION OF UTERUS AND PELVIS

Twelve Hours after Delivery.

The accompanying Stereogram was taken twelve hours after death from heart failure, which occurred immediately after delivery, and shows the Uterus and Pelvis in Sagittal Section.

The figures indicate :—

- | | |
|----------------------------|------------------------------|
| 1. Urethra. | 6. Posterior Lip of Cervix. |
| 2. Bladder. | 7. Promontory of Sacrum. |
| 3, 3. Rectum. | 8. Lower Uterine Segment. |
| 4. Vagina. | 9. Posterior Wall of Uterus. |
| 5. Anterior Lip of Cervix. | 10. Symphysis Pubis. |



65. POST-PARTUM UTERUS.

Thirty-six Hours after Delivery.

(By kind permission of Professor Harvey Littlejohn.)

The Puerperal Uterus figured above, and opened anteriorly from the lower uterine segment upwards, was removed from a patient who died of acute yellow atrophy of the liver on the second day after full time labour. Forceps were used in delivery on account of inertia of the Uterus. The Cervix shows laceration on the right side and considerable bruising, while the Cavity of the Uterus contains some blood clot.

The figures indicate :—

1. Blood Clot in Uterine Cavity.
2. Laceration of Right Side of Cervix Uteri.



65. POST-PARTUM UTERUS

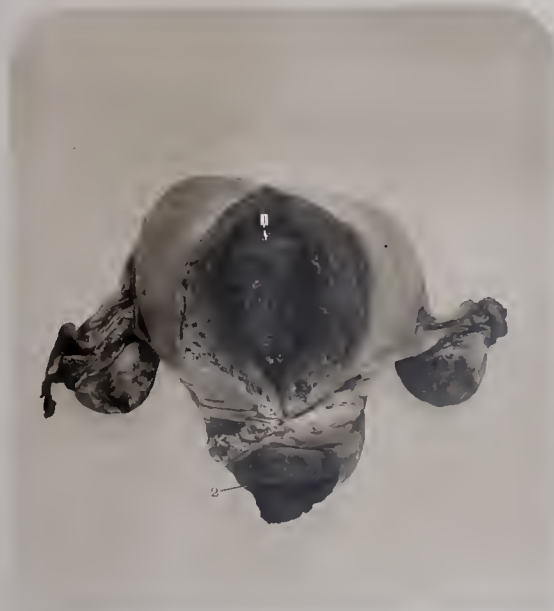
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The figures indicate :—

1. Blood Clot in Uterine Cavity.
2. Laceration of Right Side of Cervix Uteri.



67. UNMOULDED HEAD OF FŒTUS

From a Case delivered by Cæsarean Section.

During a normal labour changes in the configuration of the head take place (Head Moulding) in which two elements can be traced, swelling of the soft parts of the scalp (Caput Succedaneum) and distortion of the bones of the skull.

1. The intra-uterine pressure (general contents pressure) on the Fœtus is universal except over the free or exposed presenting part surrounded by the girdle of contact, and as the posterior part of the parturient canal exercises greater pressure throughout on the fœtal parts than the anterior wall, the Caput Succedaneum is more marked on the side of the head that is turned rather towards the anterior than to the posterior wall of the Pelvis. Consequently as the presentation changes during labour from vertex to occiput, and the position changes from oblique to antero-posterior, so the position of the Caput Succedaneum changes as successive parts of the scalp become freed from resistance. Thus a **Primary** Caput is formed in the common left occipito-anterior position of the head over the upper posterior part of the right parietal bone that is free from the pressure of the canal, and a **Secondary** Caput forms after rotation of the head when the scalp around the Posterior Fontanelle is reaching and becoming exposed at the Vulva.

2. In consequence of imperfect ossification of the bones of the fœtal skull at term, and the membranous intervals between them (Sutures and Fontanelles), the skull is compressible. The parietal bone lying anteriorly (the right in L.O.A. cases) overlaps the posterior (left) parietal bone, which meets with more resistance from the longer posterior wall of the Pelvis (primary distortion). A secondary distortion takes place when the head has rotated and descended to the floor of the Pelvis, and the parietal bones being free from pressure overlap the frontal bones, which are still subjected to the pressure of the posterior wall of the canal.

The position of the Caput and the nature of the moulding are useful as indicating the position occupied by the head in the pelvic cavity, and should be observed immediately after the birth of the child. The accompanying Stereogram was taken immediately after delivery of the child by Cæsarean section. As none of the forces referred to above were in operation, obviously the head has not been subjected to the distortions described.

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68. Foetal Head showing Indentation of Left Side (above).

Foetal Head showing Cephalhæmatoma (below).

Indentation of the bones of the foetal skull, amounting in some instances to fracture, results most frequently, as in this case, from the pressure of the sacral promontory upon the part of the head with which it comes in contact during labour. It generally occurs upon the parietal bone, and sometimes upon the side of the frontal bone, and in association with labour in cases of flat Pelvis. The indentation or depression is usually oval and spoon-shaped, and as a rule calls for no special treatment, as the bone gradually rises into proper position.

A Cephalhæmatoma is a rounded swelling with osseous ring at its margin, due to an effusion of blood from laceration of the vessels on the surface of the parietal bone, between the pericranium and the bone, and usually occurring after some difficult labour. The swelling may not be noticed until the second or third day after birth, and the most common site is the postero-superior angle of one or other parietal bone. It is variable in size, and generally unilateral, but may be bilateral, and even multiple in rare cases. The effusion is limited by the sutures to the area of the affected bone, and is tense and fluctuating. The blood which remains fluid in the centre gradually becomes absorbed, although some months may elapse before the entire disappearance of the swelling.

This pathological condition must not be confounded with the physiological formation of the Caput Succedaneum with which at times it may be associated, and which disappears within two or three days after birth.

68



70. AXIS-TRACTION FORCEPS.

Method of Introduction of Left or Lower Blade.

After thorough antiseptic preparation of the hands of the operator and the vulva of the patient, and sterilisation of the forceps, the patient, with empty bladder and bowel and under an anæsthetic, is usually placed in the left lateral posture lying across the bed, with the legs supported and the buttocks drawn to or over the edge of the bed. The fingers of the right hand are then introduced through the vulva during a pain to ascertain the exact position of the head, and kept in position while the left hand holds the left or lower half of the instrument lightly by the application handle, with the traction rod in close contact with the shank, and gently introduces it on the subsidence of a pain. The blade is directed to the left side of the vulva and carried slightly backwards, then upwards and forwards in close contact with the scalp round the left side of the Foetal Head between the fingers of the right hand and Foetal Head. While the tip of the blade is being directed forwards, the handle is carried backwards towards the Perineum.

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71. AXIS-TRACTION FORCEPS.

The left lower blade of the forceps is shown in position adapted to the left side of the head. It may either be held in position by an assistant or maintained in position with the thumb and two last fingers of the left hand, while the fore and middle fingers serve as guides for the introduction of the other half of the forceps.



ROTARY PHOTO

72. AXIS-TRACTION FORCEPS.

Method of Introduction of Right or Upper Blade.

The right or upper blade of the forceps is grasped by the application handle taken in the right hand with the traction rod swung forwards. In the interval between the pains or period of diastole of the uterus the blade is first directed towards the hollow of the sacrum, the handle being held parallel to the left thigh, while the fingers of the left hand act as a guide through the vulva. The blade is carried round the right side of the Foetal Head till it comes into complete antagonism with the left. The forceps are then locked by grasping an application handle with each hand and adjusting the blades. The right traction rod is now swung back and fixed along with the left one to the locking plate and handle, and the application handles fixed lightly together by means of the fixation screw.

N.B.—If the operator proceeds to apply the first half of the forceps immediately after a pain is over, he will very frequently find he is able to get both blades applied and locked ready for use before the onset of another pain.



73. AXIS-TRACTION FORCEPS APPLIED.

The forceps are here shown applied and ready for employment of traction.



74. AXIS-TRACTION FORCEPS.

Showing Method of Employing Traction for Delivery of Head.

In extracting the head, having secured the fixation screw, make traction with the traction handle during a pain, or, if no pains are present, at intervals. To ensure traction in the axis of the canals keep the traction rods parallel with the shanks. After each traction slacken, but do not unship the fixation screw, to avoid the risk of prolonged and continuous compression of the head, and examine the progress of the head. When the head is on the Perineum, support this structure carefully with the left hand, and make the head distend and pass over it very slowly, allowing the uterus itself as often as possible to complete the expulsion of the head and always of the body. Immediately after birth of the head unship the fixation screw, free the traction rods, and remove the right and left blades successively.

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75. THE WALCHER POSITION.

The patient is placed in the dorsal posture on a firm high table with the buttocks just projecting over the edge and the legs hanging vertically down. The effect is to increase obliquity of the Pelvic Brim with slight lengthening of the Conjugate Diameter of the Brim ($\frac{1}{8}$ or $\frac{1}{2}$ in.).

This is sometimes serviceable in minor degrees of Pelvic contraction, and for increasing the range of forceps application.

